Name:

at1119paper: Complete the Square, b = odd (v517)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 53x = -396$$

Add $\left(\frac{-53}{2}\right)^2$, which equals $\frac{2809}{4}$, to both sides of the equation.

$$x^2 - 53x + \frac{2809}{4} = \frac{1225}{4}$$

Factor the left side.

$$\left(x + \frac{-53}{2}\right)^2 = \frac{1225}{4}$$

Undo the squaring.

$$x + \frac{-53}{2} = \frac{-35}{2} \quad \text{or} \quad x + \frac{-53}{2} = \frac{35}{2}$$
$$x = \frac{53 - 35}{2} \quad \text{or} \quad x = \frac{53 + 35}{2}$$
$$x = 9 \quad \text{or} \quad x = 44$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 19x = 1316$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 31x \;=\; -234$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 7x \;=\; 294$$